

What is claimed is:

1. A method of identifying a bioagent in a sample comprising the steps of:
determining a first molecular mass of a first amplification product of a first bioagent
identifying amplicon from the sample and comparing the first molecular mass to a second
5 molecular mass of a second bioagent identifying amplicon, wherein both first and second
bioagent identifying amplicons are correlative.
2. A method of claim 1 wherein the sample is an environmental sample.
- 10 3. A method of claim 2 wherein the environmental sample is an air sample.
4. A method of claim 2 wherein the environmental sample is a water sample.
5. A method of claim 2 wherein the environmental sample is a soil sample.
- 15 6. A method of claim 2 wherein the environmental sample is a surface swab sample.
7. A method of claim 2 wherein the environmental sample is from a building or a
container.
- 20 8. A method of claim 1 wherein the sample is a product sample.
9. A method of claim 8 wherein the product sample is a foodstuff.
- 25 10. A method of claim 8 wherein the product sample is a cosmetic.
11. A method of claim 1 wherein the second molecular mass of the second bioagent
identifying amplicon is indexed to a defined bioagent and contained in a database.
- 30 12. A method of claim 1 wherein a first base composition signature is determined from
the first molecular mass of the first amplification product and wherein the first base
composition signature is compared to a second base composition signature determined for the
second bioagent identifying amplicon.

13. A method of claim 12 wherein the second base composition signature is indexed to a defined bioagent and contained in a database.

14. A method of claim 1 wherein the molecular mass of the amplification product is
5 determined by ESI-TOF mass spectrometry.

15. A method of claim 1 wherein the molecular mass of the amplification product is determined by ESI-FTICR mass spectrometry.

10 16. A method of claim 15 wherein a mass spectrum obtained in determination of the molecular mass provides a measure of the quantity of the bioagent in the sample.

17. A method of claim 1 wherein the bioagent is a bacterium, virus, mold, fungus or parasite.

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18. The method of claim 17 wherein the mold is a household mold.

19. The method of claim 18 wherein the household mold is *Stachybotrys*, *Cladosporium*, *Penicillium*, or *Alternaria*.

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20. A method of monitoring a bioremediation process by identifying bioagents in a sample comprising the steps of:

determining a first molecular mass of a first amplification product of a first bioagent
identifying amplicon from the sample and comparing the first molecular mass to a second
25 molecular mass of a second bioagent identifying amplicon wherein, both first and second
bioagent identifying amplicons are correlative.

21. A method of claim 20 wherein the second molecular mass of the second bioagent identifying amplicon is indexed to a defined bioagent and contained in a database.

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22. A method of claim 20 wherein a first base composition signature is determined from the first molecular mass of the first amplification product and wherein the first base

composition signature is compared to a second base composition signature determined for the second bioagent identifying amplicon.

23. A method of claim 22 wherein the second base composition signature is indexed to a
5 defined bioagent and contained in a database.
24. A method of claim 20 wherein the molecular mass of the amplification product is determined by ESI-TOF mass spectrometry.
- 10 25. A method of claim 20 wherein the molecular mass of the amplification product is determined by ESI-FTICR mass spectrometry.
26. A method of claim 25 wherein a mass spectrum obtained in determination of the molecular mass provides a measure of the quantity of the bioagent in the sample.
- 15 27. A method of claim 20 wherein the bioagent is a bacterium or a fungus.